

NOvA Operations

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May 25, 2011
DOE Site Review



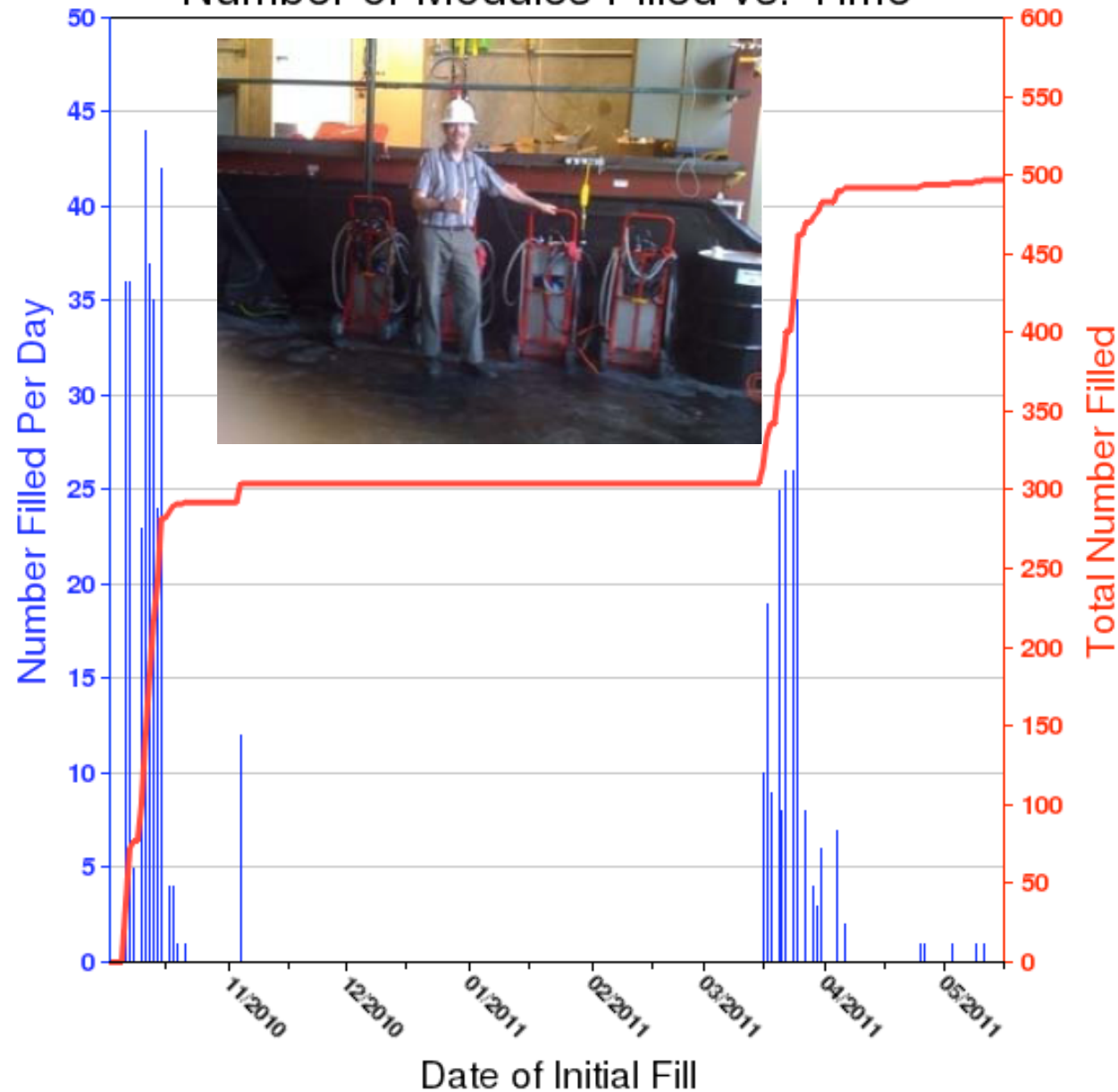
NDOS Commissioning Accomplishments

- Nov. 30, 2010: "NOvA Project Meets Level 1 'IPND ready to take data' Milestone
- Dec. 16, 2010: confirmation of observation of NuMI events.
- Apr. 7, 2011: confirmation of observation of BNB events.
- Successful data collection from **all** NDOS blocks
- DAQ stability greatly improved; continuous running > 36 hours has been recorded.
- DAQ configuration has been greatly simplified:
 - DCM hardware configuration read from and stored to database
 - Individual pixel masks and thresholds
 - Straightforward process for adding new hardware to the DAQ readout

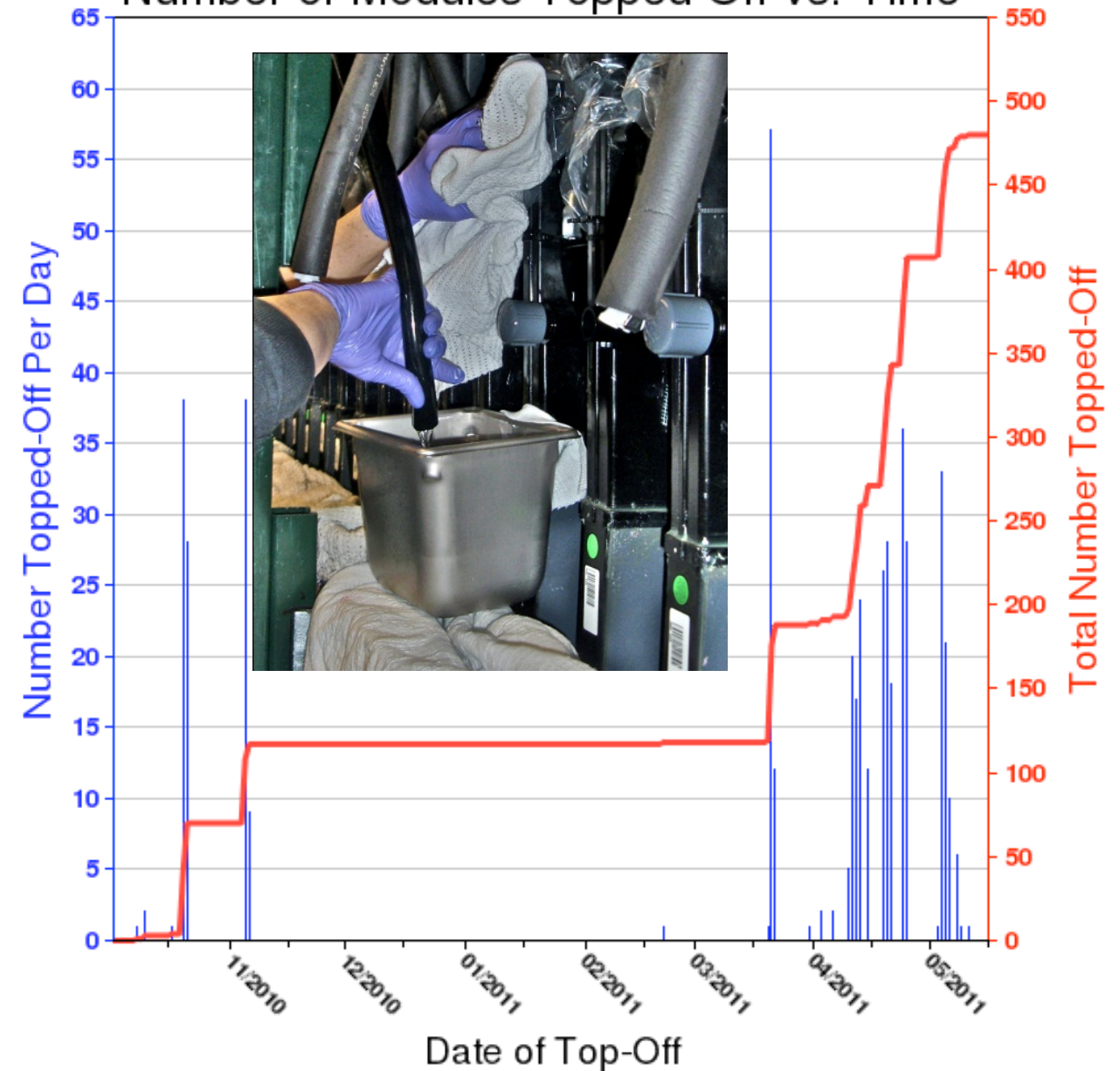


Scintillator Filling at NDOS

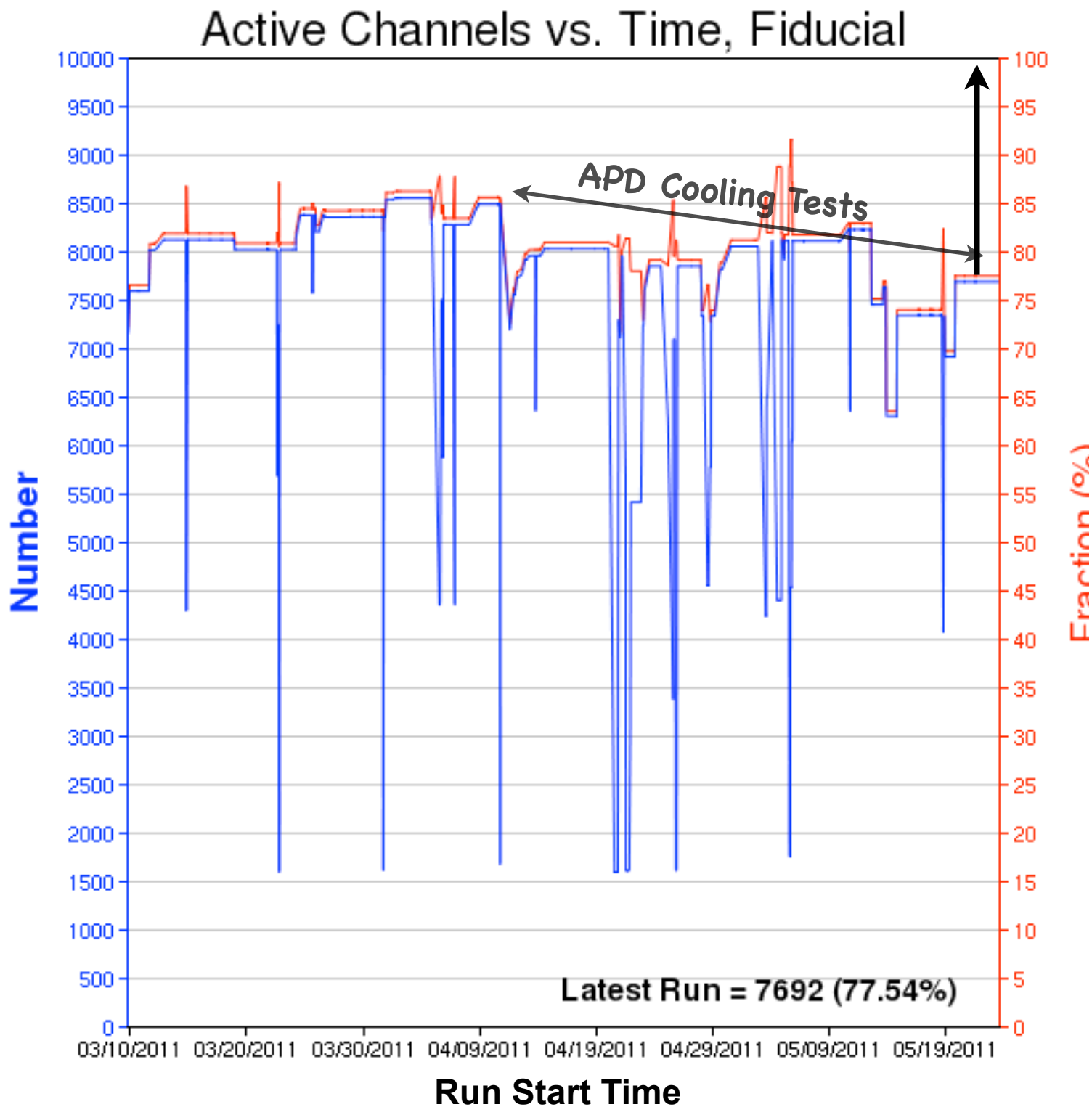
Number of Modules Filled vs. Time



Number of Modules Topped Off vs. Time



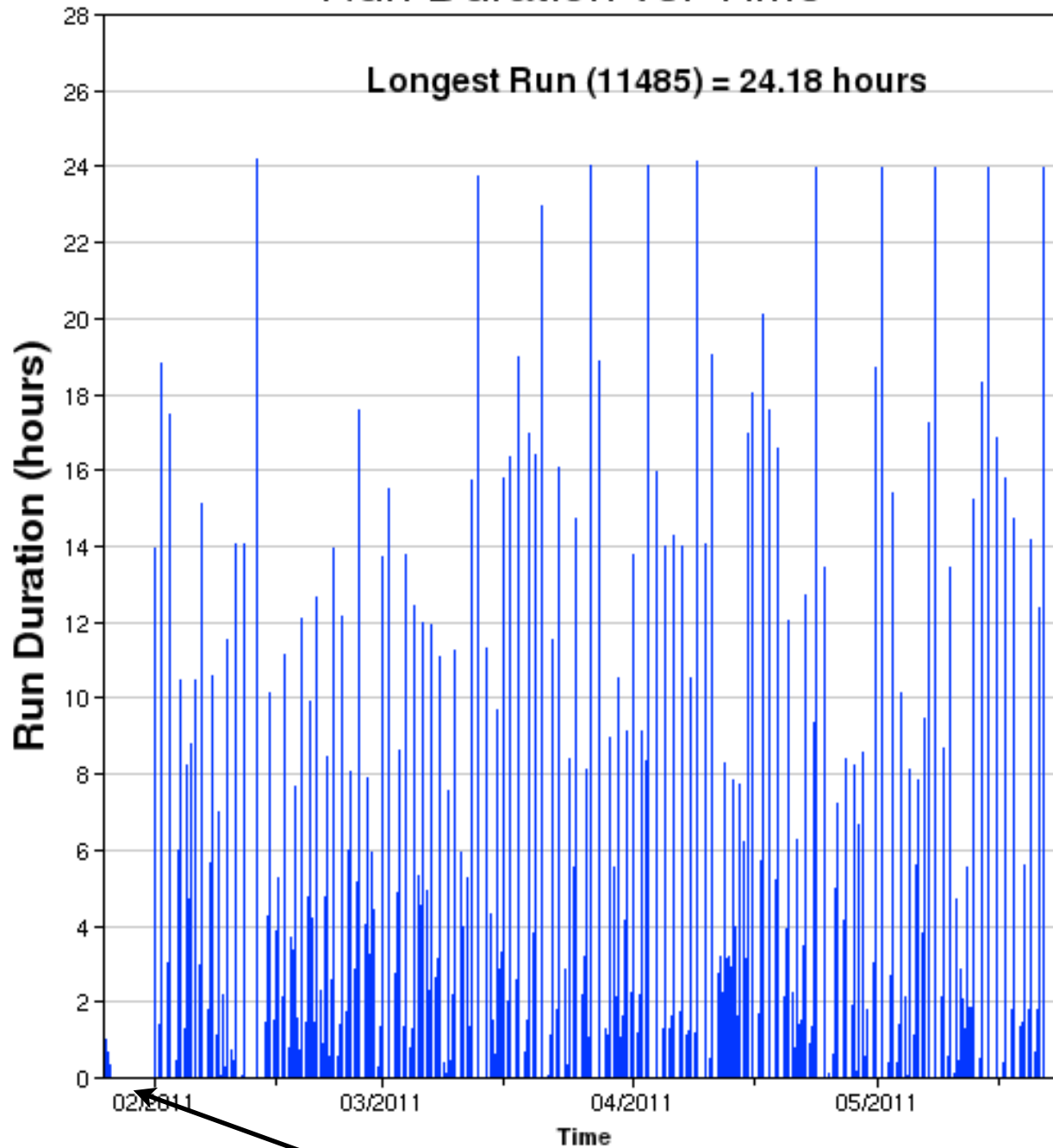
DAQ Active Channels vs. Time



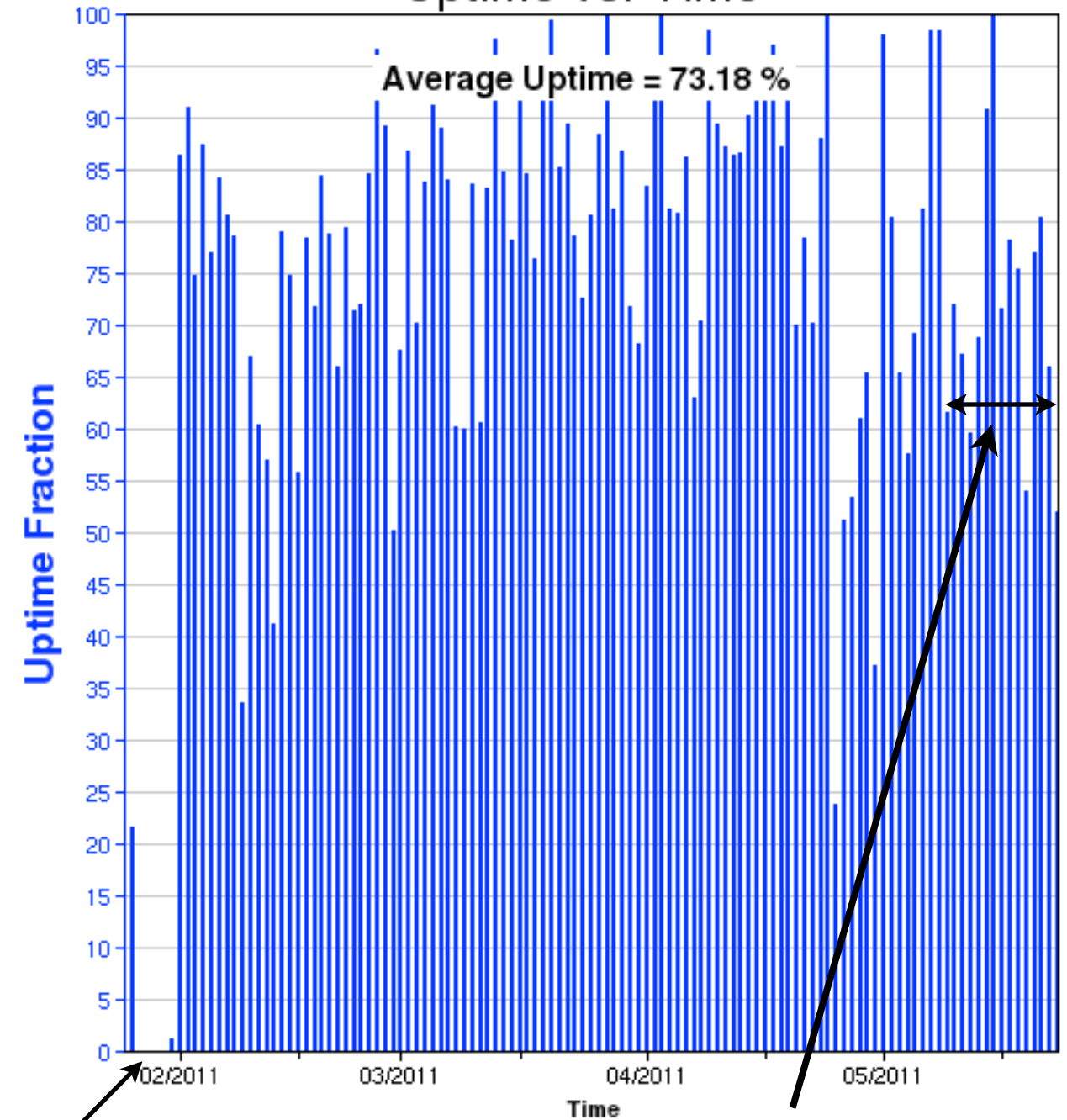
- “Number”: total number of active channels in the fiducial volume in a run
- “Fraction”: fraction of active channels for the hardware configuration
- A drop in total number could result in an increase in the fraction simply because we took one DCM (with many more “bad” FEBs than the other DCMs) out.
- We have been conducting APD cooling tests on the detector for the last ~month; we have found that enabling APD cooling has caused some electronics to become very noisy and thus they are removed from DAQ readout. This is under investigation.
- Goal is to get to ~100% in the next few weeks.

DAQ Stability

Run Duration vs. Time



Uptime vs. Time



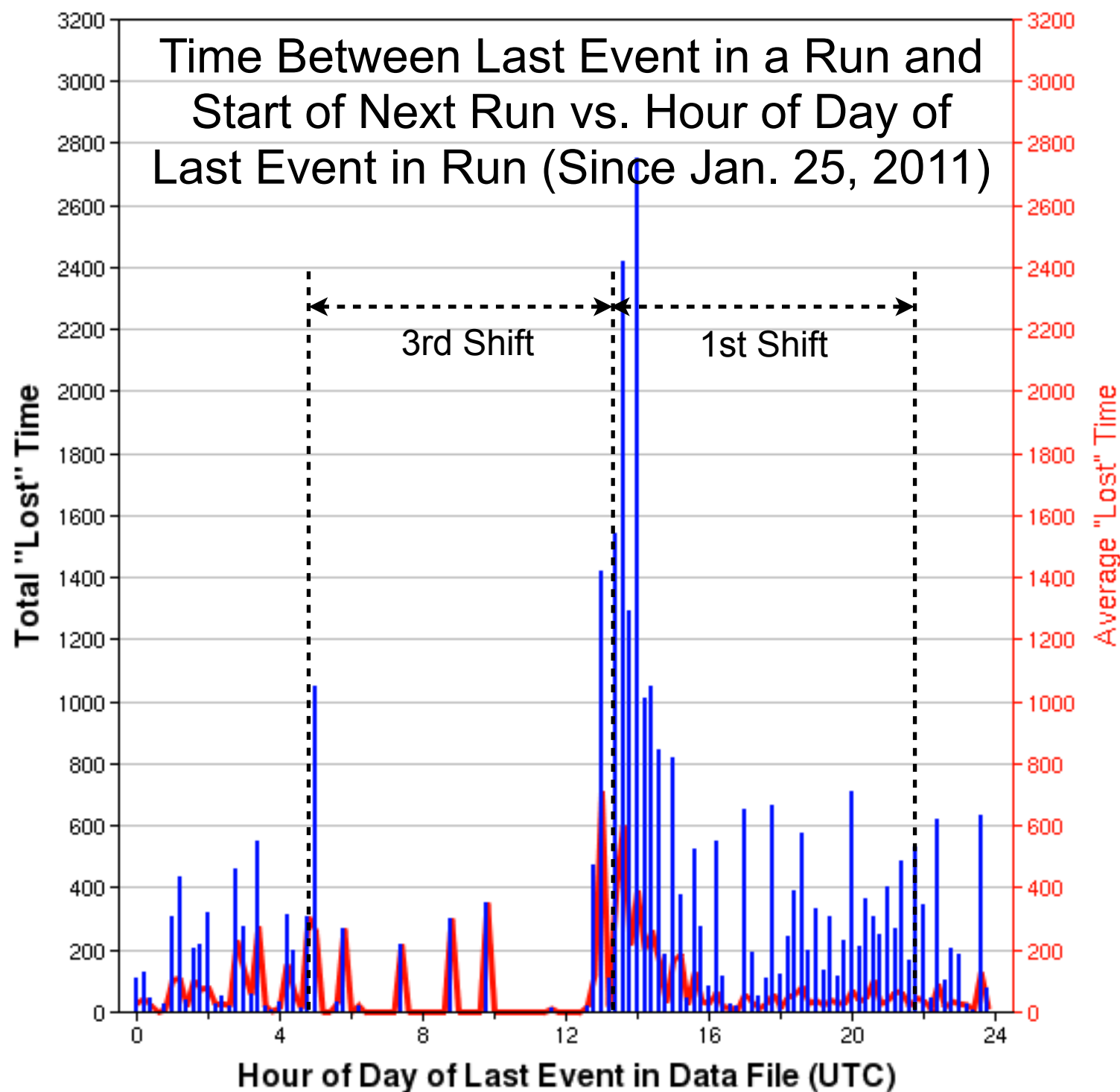
Missing Data in DB...

we did actually take data.

NuMI Beam Down,
Time Used for DAQ
Commissioning and other
work on the detector...

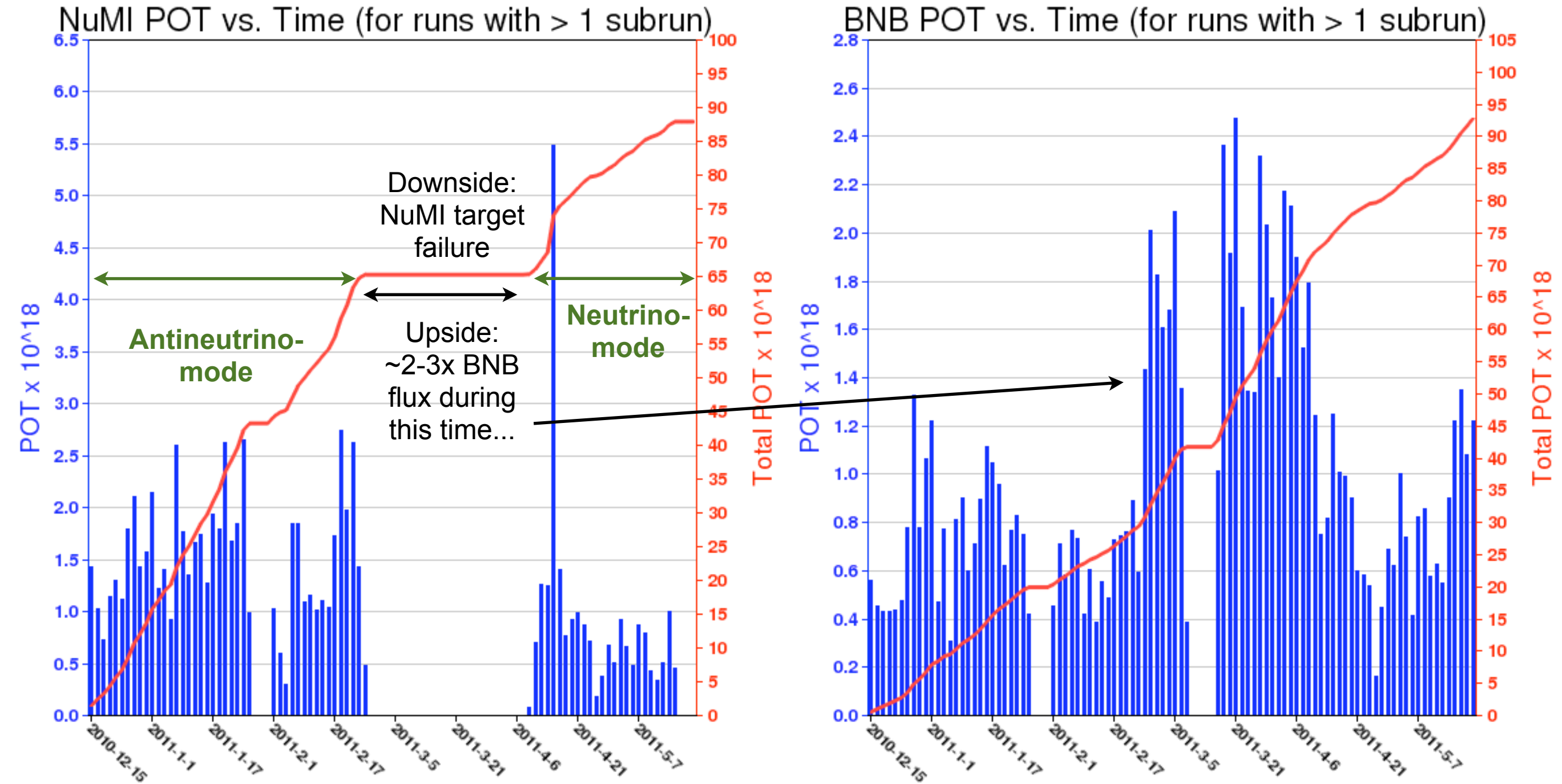
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DAQ Stability



- Note: the y-axis is ~arbitrary, since I had to rely on processed data to extract this information, and there were many missing runs. This plot requires contiguous runs.
- 1st shift: commissioning and installation work results in many short stops/starts.
- 2nd shift: generally more calm, especially after commissioning and installation crew go home.
- 3rd shift: unattended, DAQ left running.
- **Average lost running time because of DAQ crash during 3rd shift is ~1 hour/shift since Jan. 25, 2011**

NuMI & BN Beam Exposure



- $\sim 6.5 \times 10^{19}$ POT of “good” NuMI data in antineutrino mode, $\sim 2.2 \times 10^{19}$ POT of “good” NuMI data in neutrino mode (“good” does not include run/event cuts).
- $\sim 9.3 \times 10^{19}$ POT of “good” BNB data.

Commissioning Work Remaining

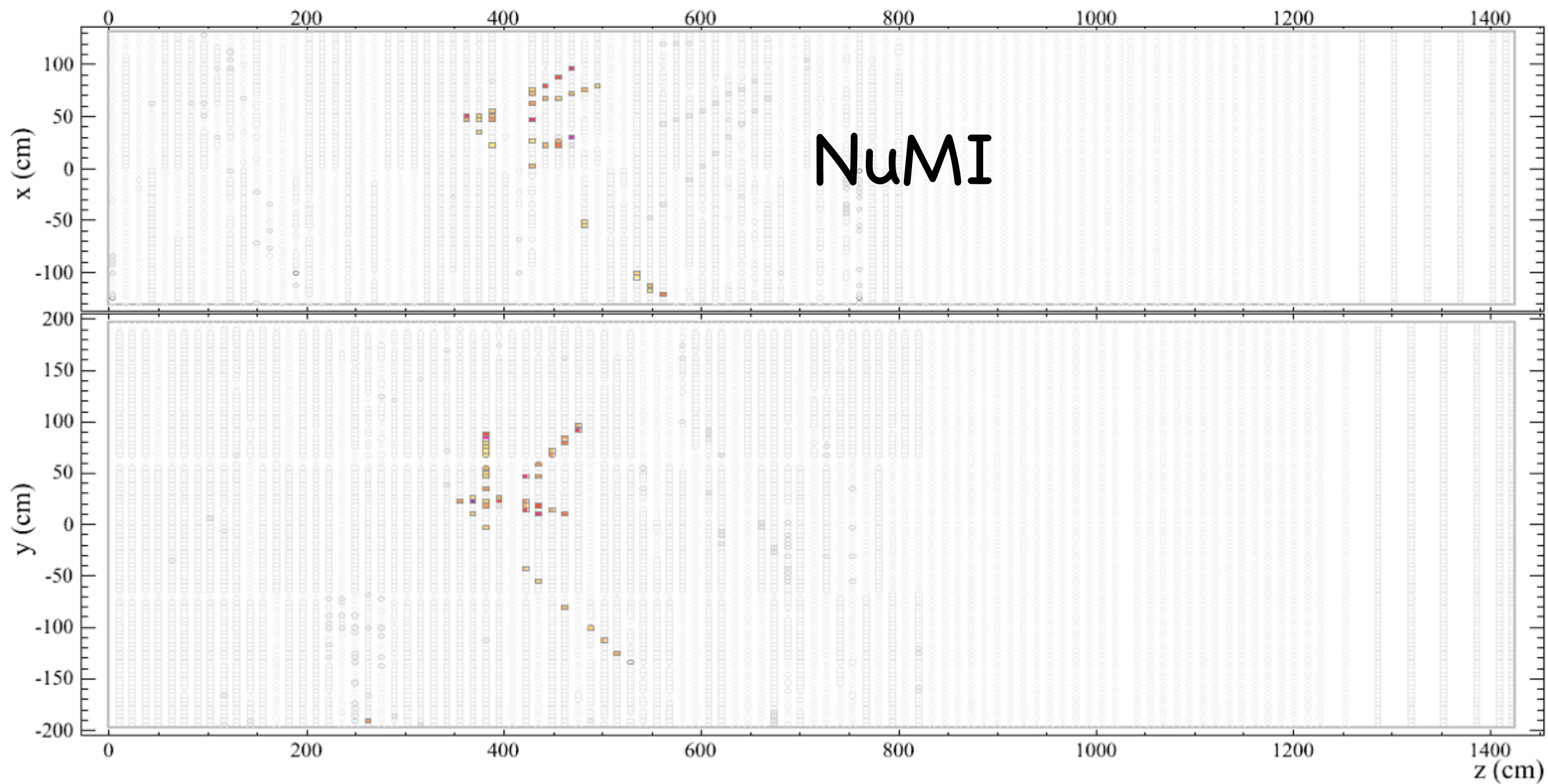
- Run with cooled APDs while monitoring TECCs
- Integrate DAQ & DCS, especially with regard to DCMs
- Full DAQ configuration to the database
- Individual APD voltage settings
- DAQ partitioning
- Automatic error recovery
- Test coated APDs



NDOS Run Coordination

- Run coordination responsibilities:
 - shift coordination (3 shifter/24 hours, NDOS shifts began Aug. 16, 2010)
 - coordination of “time on detector” (installation/hardware work)
 - optimization of commissioning time vs. data collection

Backup Slides



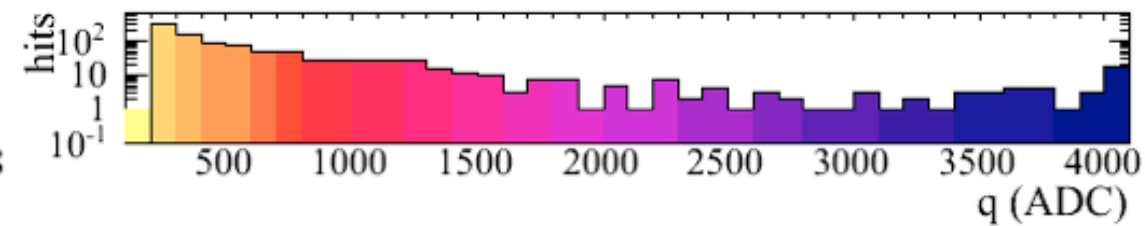
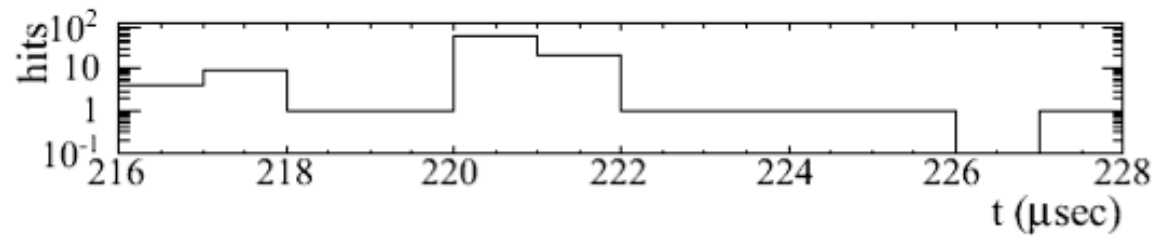
NOvA - FNAL E929

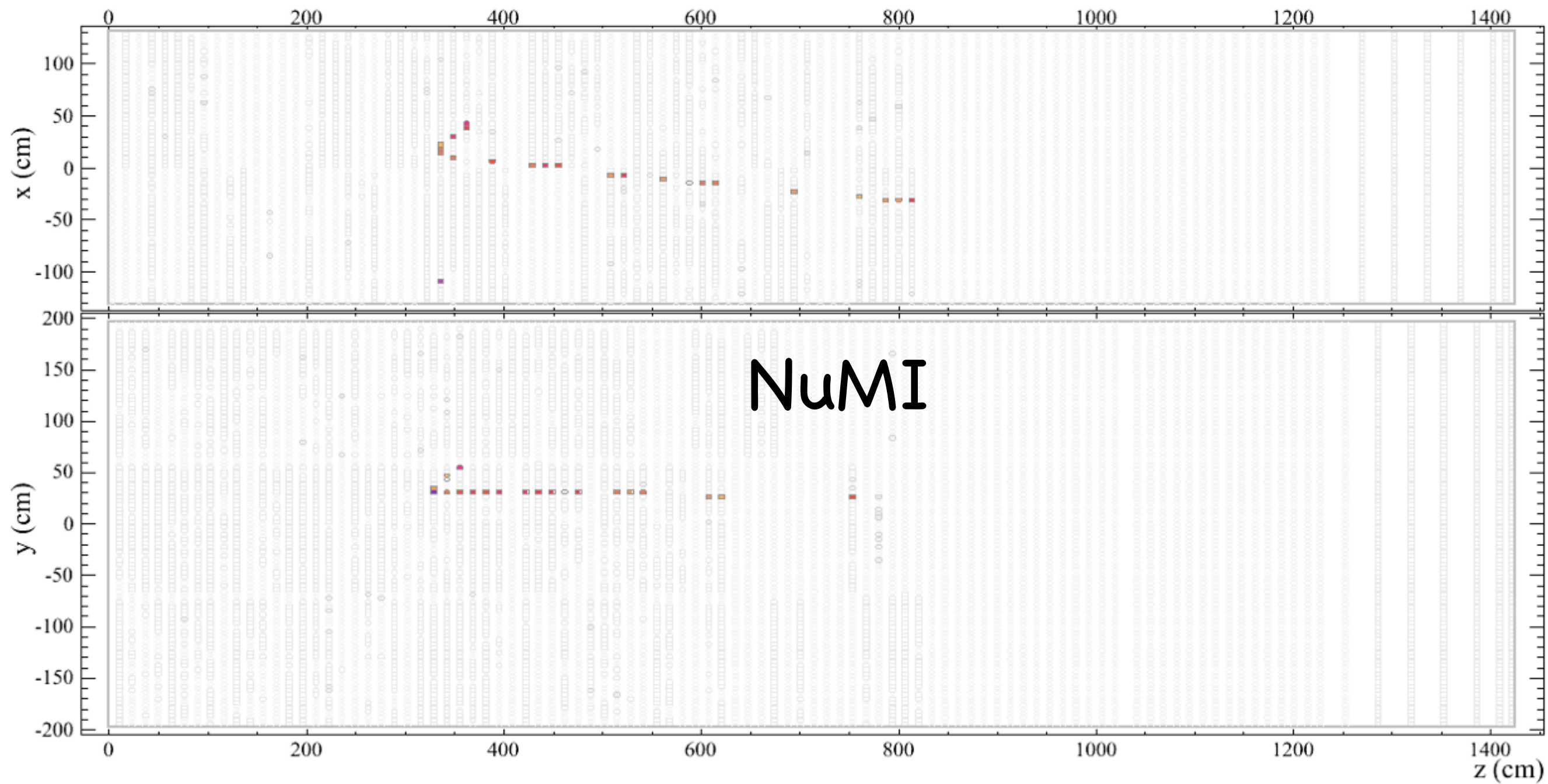
Run: 11433/8

Event: 358348

UTC Tue Feb 8, 2011

11:43:35.208797504





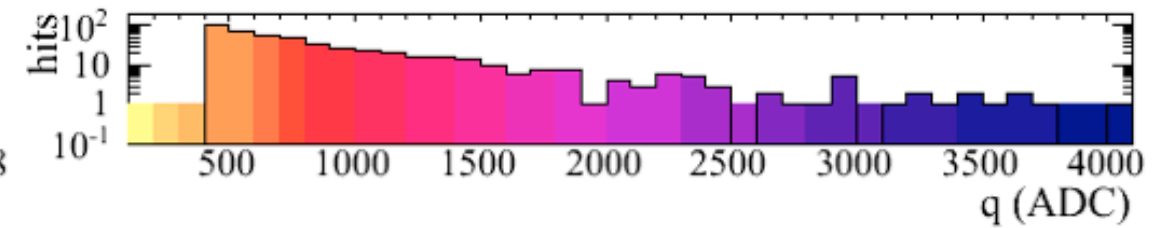
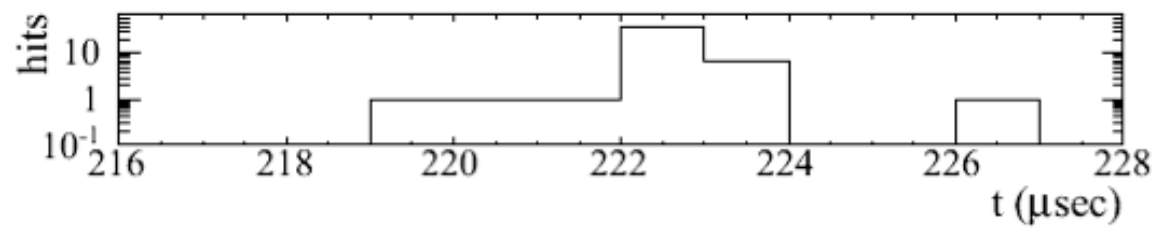
NOvA - FNAL E929

Run: 11200/8

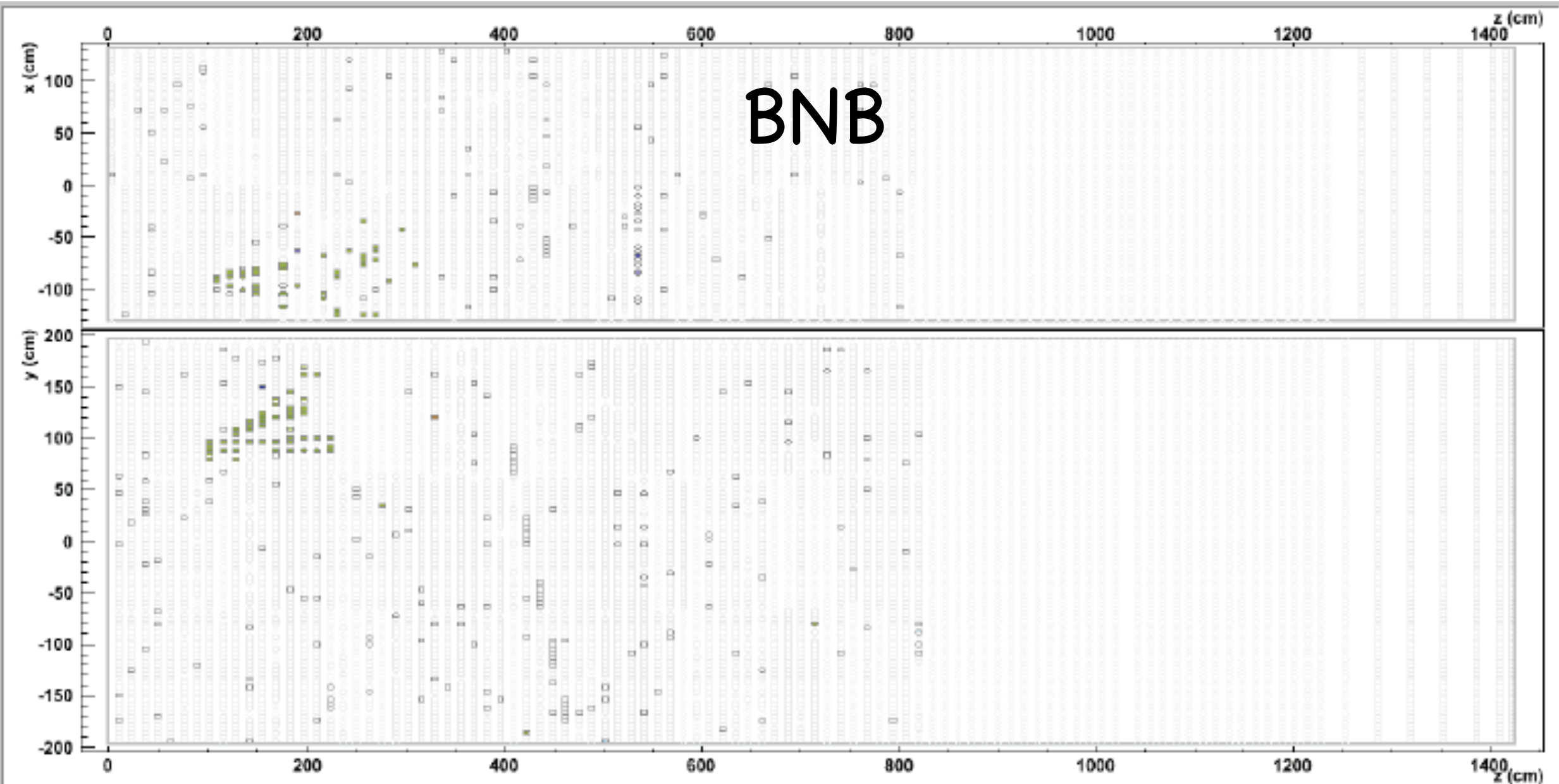
Event: 349365

UTC Thu Jan 13, 2011

05:45:9.031538252



BNB



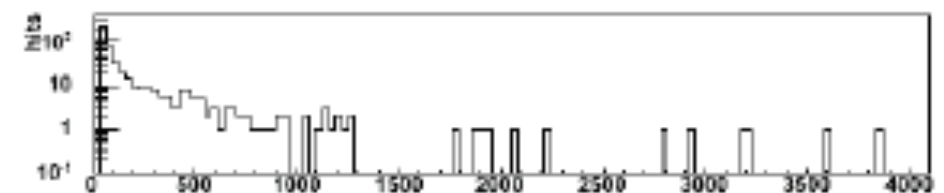
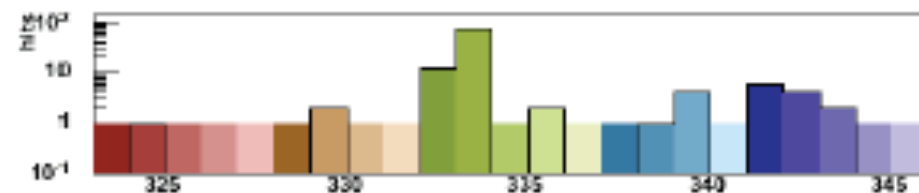
NOvA - FNAL E929

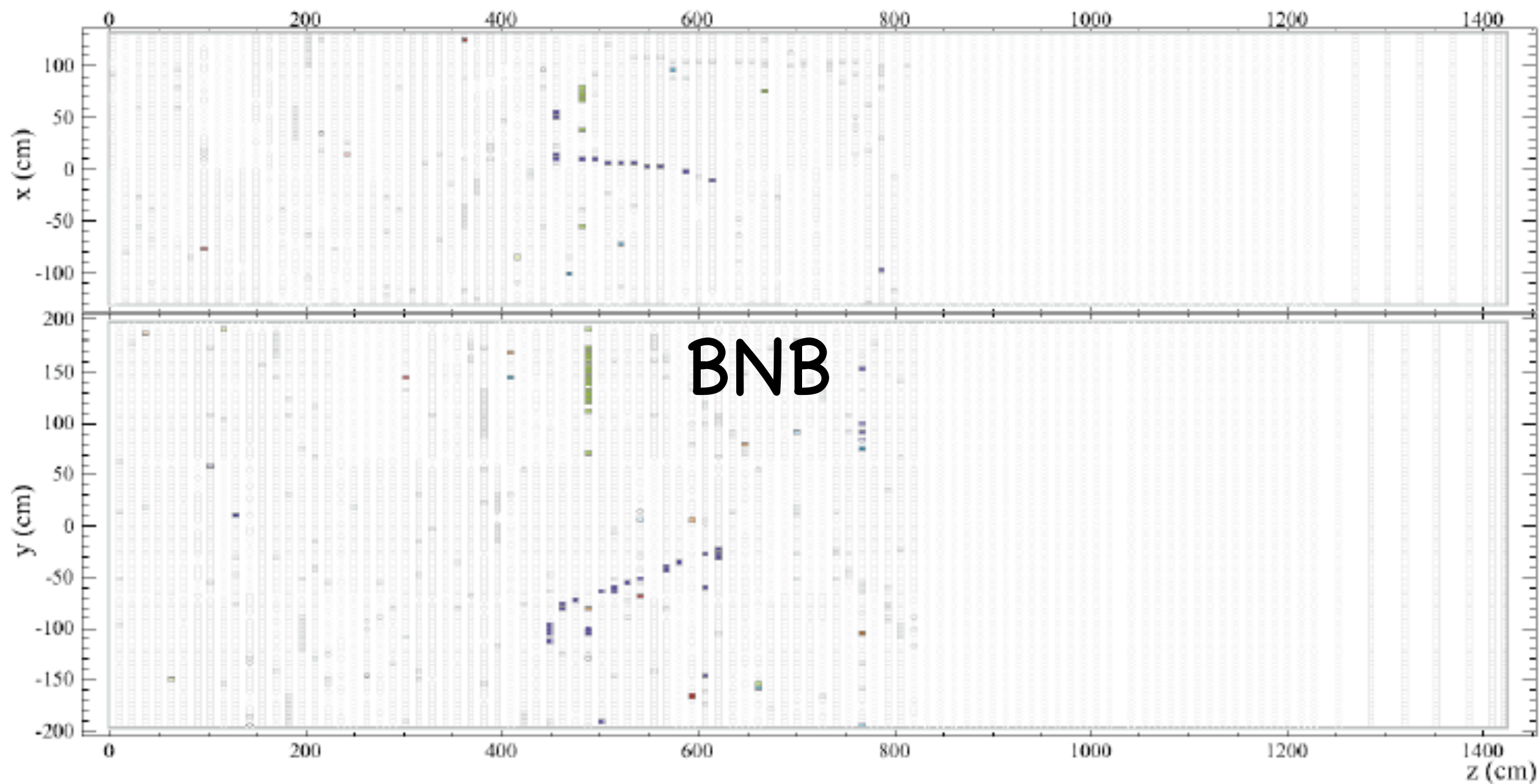
Run: 11662/10

Event: 524654

UTC Sat Mar 5, 2011

11:54:26.217389008





NOvA - FNAL E929

Run: 11666/8

Event: 375959

UTC Sun Mar 6, 2011

11:37:19.629932160

